

CLAIMS

1. A receiving apparatus, comprising (i) a received signal level determination section for detecting a power level of a received signal; and (ii) a correlation detection section for detecting a correlation between the received signal and a predetermined reference signal,

the receiving apparatus switching between reception standby states as required,

said reception standby states, including:

a normal operation mode in which a shift to a reception state is determined in accordance with whether or not the correlation is detected by the correlation detection section; and

a low power consumption mode in which the shift to the reception state is determined in accordance with whether or not a received signal power level not less than a predetermined value is detected by the received signal level determination section.

2. The receiving apparatus as set forth in claim 1, receiving a spread spectrum signal,

wherein:

in the normal operation mode, the correlation detection section despreads the spread spectrum signal, and detects the correlation between (i) the despread

spread spectrum signal and (ii) the predetermined reference signal; and

the shift to the reception state is made when the correlation detected by the correlation detection section has a value not less than a certain value.

3. The receiving apparatus as set forth in claim 1, wherein:

the normal operation mode and the low power consumption mode are switched between each other in accordance with the power level of the received signal, which power level is detected by the received signal level determination section.

4. The receiving apparatus as set forth in claim 1, being connected to a terminal apparatus,

the receiving apparatus, further comprising:

a register section for storing a command concerning the reception standby states, which command is given from the terminal apparatus,

wherein:

the normal operation mode and the low power consumption mode are switched between each other with reference to the command stored in the register section.

5. The receiving apparatus as set forth in claim 3, further comprising:

a standby mode selection section for selecting a reception standby state from the reception standby states,

wherein:

while the reception standby state is the normal operation mode, the received signal level determination section compares (i) the detected power level of the received signal with (ii) a certain threshold value A at which the received signal is detectable also in the low power consumption mode; and

when the power level, detected by the received signal level determination section, of the received signal is not less than the threshold value A, the standby mode selection section carries out control such that the normal operation mode is switched to the low power consumption mode.

6. The receiving apparatus as set forth in claim 3, further comprising:

a success counter for counting a number of times a beacon signal is successfully received; and

a standby mode selection section for selecting a reception standby state from the reception standby states,

wherein:

while the reception standby state is the normal operation mode, the received signal level determination section compares (i) the detected power level of the received signal with (ii) a certain threshold value A at which the received signal is detectable also in the low power consumption mode; and

when the power level, detected by the received signal determination section, of the received signal is not less than the threshold value A, the success counter counts the number of times the beacon signal is successfully received; and

when the number of times the beacon signal is successfully received reaches a certain value, the standby mode selection section carries out control such that the normal operation mode is switched to the low power consumption mode.

7. The receiving apparatus as set forth in claim 5 or 6, wherein:

while the reception standby state is the low power consumption mode, the received signal level determination section compares (i) the detected power level of the received signal with (ii) a certain threshold value B at which the received signal is not detectable in the low power consumption mode; and

when the power level, detected by the received signal level determination section, of the received signal is not more than the threshold value B, the standby mode selection section carries out control such that the low power consumption mode is switched to the normal operation mode.

8. The receiving apparatus as set forth in claim 7, further comprising:

a timer section for detecting a time at which a beacon signal is picked up and received,

wherein:

the received signal level determination section compares the power level of the received signal with the threshold value B only when the beacon signal is received.

9. The receiving apparatus as set forth in claim 7, wherein:

the threshold value A is greater than the threshold value B.

10. The receiving apparatus as set forth in claim 1, further comprising:

a power supply and clock control section for carrying out control such that power and a clock signal are

supplied to a circuit provided in the receiving apparatus,

wherein:

during a reception standby operation, the power supply and clock control section carries out control such that the power and the clock signal are stopped from being supplied to a circuit other than a circuit carrying out the reception standby operation; and

upon receiving a control signal indicating a start of reception, the power supply and clock control section carries out control such that the power and the clock signal are supplied to a circuit necessary for the reception.

11. The receiving apparatus as set forth in claim 10, wherein:

the control signal indicating the start of the reception is supplied from the received signal level determination section while the reception standby operation is carried out in the low power consumption mode.

12. A receiving apparatus for receiving an external signal,

the receiving apparatus switching between reception standby states,

said reception standby states, including:

a normal operation mode in which a shift to a reception state is determined by (a) detecting a power level of a received signal and (b) detecting a correlation between the received signal and a predetermined reference signal; and

a low power consumption mode in which the correlation between the received signal and the predetermined reference signal is not detected and in which the shift to the reception state is determined only by detecting a received signal power level not less than a predetermined value,

the receiving apparatus carrying out a reception standby operation in the normal operation mode in a first reception power range in which reception is supposed to be possible but in which the reception is impossible in the low power consumption mode, the receiving apparatus carrying out the reception standby operation in the low power consumption mode in a second reception power range covering reception power higher than reception power covered by the first reception power range.

13. The receiving apparatus as set forth in claim 12, wherein:

the low power consumption mode and the normal

operation mode are switched between each other in accordance with either (i) the power level of the received signal or (ii) an external switching operation.

14. A communication apparatus, comprising:
the receiving apparatus as set forth in any one of claims 1 to 13; and
a transmitting apparatus.

15. A terminal apparatus, which is connected to the receiving apparatus as set forth in any one of claims 1 to 13,

the terminal apparatus, comprising:
an operation section for (i) selecting a mode, as a reception standby state of the receiving apparatus, from (a) the normal operation mode, (b) the low power consumption mode, and (c) an automatic selection mode in which the normal operation mode and the low power consumption mode are switched between each other in accordance with a power level of a received signal, and (ii) allowing inputting of the selected mode into the receiving apparatus.

16. A communication terminal apparatus,
comprising:

either (i) the receiving apparatus as set forth in any one of claims 1 to 13, or (ii) the communication apparatus as set forth in claim 14; and

the terminal apparatus as set forth in claim 15.

17. The communication terminal apparatus as set forth in claim 16, wherein:

the communication apparatus is a wireless LAN apparatus; and

the terminal apparatus is a terminal to which the wireless LAN apparatus is externally connected or which contains the wireless LAN apparatus.

18. A receiving method for receiving an external signal,

the receiving method, comprising a switching step of switching between reception standby states as required,

said reception standby states, including:

a normal operation mode in which a shift to a reception state is determined by (a) detecting a power level of a received signal and (b) detecting a correlation between the received signal and a predetermined reference signal; and

a low power consumption mode in which the correlation between the received signal and the

predetermined reference signal is not detected and in which the shift to the reception state is determined only by detecting a received signal power level not less than a predetermined value.

19. The receiving method as set forth in claim 18, wherein:

in the switching step, the normal operation mode and the low power consumption mode are switched between each other in accordance with the power level of the received signal.

20. The receiving method as set forth in claim 18, wherein:

in the switching step, the normal operation mode is selected in a first reception power range in which reception is supposed to be possible but in which the reception is impossible in the low power consumption mode, and the low power consumption mode is selected in a second reception power range covering reception power higher than reception power covered by the first reception power range.

21. A receiving program for causing a computer to carry out the step as set forth in any one of claims 18 to

20.

22. A computer-readable recording medium storing the receiving program as set forth in claim 21.